



UNITED STATES PATENT AND TRADEMARK OFFICE

6

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/520,751

06/22/2005

Stefano Fanfani

71653

5102

23872 7590 10/09/2007
MCGLEW & TUTTLE, PC
P.O. BOX 9227
SCARBOROUGH STATION
SCARBOROUGH, NY 10510-9227

EXAMINER

MOORE, KARLA A

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

10/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/520,751

Applicant(s)

FANFANI, STEFANO

Examiner

Karla Moore

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 January 0705.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 0105.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5-7 and 16 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 5 recites the limitations "a fixed body", "a vacuum chamber", "a respective part carrying system", "at least one high-voltage electrode", and "at least one diffuser", all of which are already in some way recited in claim 1. However, the relationships between the features of claim 1 and those of claim 5 are not clearly defined.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 8-9, 11-15, 18-20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,895,531 to Vignola in view of German Patent No. 19826259 A1 to Burger et al. (U.S. Patent Publication No. 2002/0100420 is used as

Art Unit: 1763

a working translation of Burger et al. All references to the disclosure of Burger et al. are with respect to the U.S. document).

6. Vignola discloses a plant for vacuum metallization of objects treated in batches in Figures 1-12 substantially as claimed and comprising: a vacuum chamber (12); at least one part carrying system (66) movable inside said vacuum chamber; at least one discharge electrode (106); at least one diffuser (102 and 104) associated with said discharge electrode for introduction of at least one fluid substance; a housing (14) containing at least partly said discharge electrode and/or said diffuser; wherein said discharge electrode and said diffuser are elongated and extend parallel to a longitudinal axis, and said housing is opened parallel to said axis.

7. However, Vignola fails to teach said housing is arranged inside said vacuum chamber, in an approximately central position.

8. Burger et al. teach providing a housing at a central portion of a vacuum metallization chamber for the purpose of preventing the formation of plasma in undesired locations of the vacuum metallization chamber (paragraph 23). A discharge electrode (Figures 1 and 2, 15) is at least partly contained by the housing. Burger et al. also teach that the type and arrangement (e.g. on inner wall of the chamber or centrally located) of a plasma source (or sources) can be chosen in accordance with constructive and process-technical conditions (paragraphs 6 and 21-23).

9. It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have provided a housing in Vignola in order to prevent formation of plasma in undesired locations of the vacuum metallization chamber as taught by Burger et al. It would have also been obvious to choose a type and

Art Unit: 1763

arrangement of plasma sources for the vacuum metallization chamber in accordance with constructive and process-technical positions as taught by Burger et al.

10. With respect to claim 2, in Vignola, said part carrying system rotates about an axis of rotation inside the vacuum chamber (column 4, rows 31-37).

11. With respect to claims 3 and 12-15, in the combined teachings of Vignola and Burger et al., said housing has the form of a substantially semi-cylindrical (arched, cylindrical, etc.) wall surrounding at least partially (arranged inside) said discharge electrode and said diffuser.

12. With respect to claim 4, in the combined teachings of Vignola and Burger et al., said housing is arranged inside said part carrying system.

13. With respect to claim 8, the vacuum chamber of Vignola has a frontally closing hatch (16) and a substantially horizontal longitudinal axis and said part-carrying system can be inserted and extracted from said vacuum chamber.

14. With respect to claim 9, in the combined teachings of Vignola and Burger et al., said housing, said discharge electrode and said diffuser have a horizontal extension substantially parallel to the axis of said vacuum chamber.

15. With respect to claim 11, in the combined teachings of Vignola and Burger et al., said housing said discharge electrode and said diffuser are mounted on an end of said chamber substantially opposite the hatch for closing thereof.

16. With respect to claims 18-20, the apparatus of Vignola comprises a plurality of diffusers enclosed in a volume protected by said housing. With respect to the materials supplied through the diffusers, the courts have ruled that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re

Art Unit: 1763

Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). The courts have also ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

17. With respect to claim 22, both Vignola and Burger et al. teach that two or more housings may be provided arranged in the vacuum chamber with corresponding discharge electrodes and diffusers.

18. With respect to claim 23, said part carrying system in Vignola comprises a carousel rotating about a main axis of rotation and a series of part carrying devices rotating about respective auxiliary axes parallel to the main axes of rotation, the parts thus being imparted a planetary motion inside the vacuum chamber (column 4, rows 23-42).

19. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vignola and Burger et al. as applied to claims 1-4, 8-9, 11-15, 18-20 and 22-23 above, and further in view of 2001/0054391 A1 to Dunham.

20. Vignola and Burger disclose the invention substantially as claimed and as described above, including the diffuser comprising a plurality of calibrated holes distributed along the longitudinal extension thereof and the diffuser being connected to a duct supplying a product to be diffused inside the vacuum chamber on a first end and being closed on a second end.

21. However, Vignola and Burger et al. fail to disclose a diameter of the holes increasing from the first end to the second end.

Art Unit: 1763

22. Dunham teaches that it is known in the art to determine the dimensions of gas flow structures through computer modeling for the purpose of producing optimum uniformity characteristics and gas flow characteristics (paragraph 32).

23. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided holes of optimized diameter(s) according to computer modeling in Vignola and Burger in order to produce optimum uniformity characteristics and gas flow characteristics as taught by Dunham.

Allowable Subject Matter

24. Claims 5-7, 10, 16 and 21 would appear to be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

25. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or fairly suggest a vacuum metallizing plant as recited in the claims, wherein said housing, said discharge electrode and said diffuser are movable with said part-carrying system so as to be inserted into said chamber and extracted therefrom. Further, no other properly combinable art was located that provided the missing teachings along with the requisite motivation for combination.

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patents 4282597, 6021738, 6708645 disclose vacuum metallization apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KARLA MOORE
PRIMARY EXAMINER

1 October 2007

